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INTERSTITIAL POLYCHAETES OF JAPAN II.
A NEW SPECIES OF *HESIONURA* FROM WESTERN JAPAN¹⁾

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With Text-figures 1-3 and Table 1

Hesionura, belonging to the family Phyllodocidae, is a genus mostly composed of interstitial species. Nine species and one subspecies have so far been recorded from various localities in the world. The present paper provides the first record of the genus from Japan. The materials from three localities in western Japan were examined. Their setae were especially observed under the phase contrast microscope of one thousand magnification. The result has revealed that they all represent a single new species, whose type specimens are preserved at the Osaka Museum of Natural History.

I would like to express my hearty thanks to Prof. Eiji Harada of the Seto Marine Biological Laboratory for reading the manuscript. Thanks are also due to Mr. Yasuji Sakai of the Nansei Regional Fisheries Research Laboratory who has placed the material at my disposal.

Family Phyllodocidae WILLIAMS, 1882

Genus *Hesionura* HARTMANN-SCHRÖDER, 1958

Small cirriform worms with numerous body segments. Prostomium with four antennae of subequal length. First segment bears only a pair of long tentacular cirri. Second segment has two pairs, the dorsal one elongated while the ventral one short. Third segment (first setiger) lacks dorsal cirri. Parapodia uniramous with well developed dorsal and ventral cirri.

Hesionura japonica n. sp.

(New Japanese name: Itokuzu-sashiba)

(Text-figs. 1-3)

Material examined: (1) 11 specimens from Senri Beach, Minabe, Wakayama Pref., Kii Channel. (2) 8 specimens from Sami-beach, Kurashiki City, Okayama Pref.,

1) Contributions from the Osaka Museum of Natural History, No. 232.

Inland Sea. (3) 8 specimens collected by Mr. Sakai from the mouth of the Ōnokawa River, Ōita City, Ōita Pref., Beppu Bay.

Habitat: Intertidal beach of coarse or very coarse sand.

Type specimens: Holotype with 211 setigers 33.8 mm long, from Senri on 27 May 1976 (OMNH Iv-216); Two paratypes, one with 240 setigers 38.0 mm long, from Senri on 27 May 1976 (OMNH Iv-217); the other with 155 setigers 18.0 mm long, from Senri on 28 November 1974 (OMNH Iv-218).

DIAGNOSIS

Thread-like worm with numerous segments; body variable in length but usually 0.15–0.20 mm in width excluding parapodia. The shape of prostomium is from cone-like to globose. Dorsal and ventral cirri of parapodium are long oval form and almost of the same length, the former free from the main parapodial lobe. Parapodial setae are all compound: the shaft of the uppermost one trifid, that of the second five-forked and those of the third and fourth bifid.

DESCRIPTION

The longest specimen measured 38.0 mm with 244 setigers. Body width exclusive of parapodia is mostly in the range of 0.15–0.20 mm regardless of its length.

The shape of prostomium is spherical cone or nearly globose (Fig. 1A, B). A pair of minute reddish eye spots are usually situated near the base of prostomium though sometimes lacking. Four prostomial antennae are of the same length and a little shorter than the prostomium. Proboscis, often coloured dark brown, is

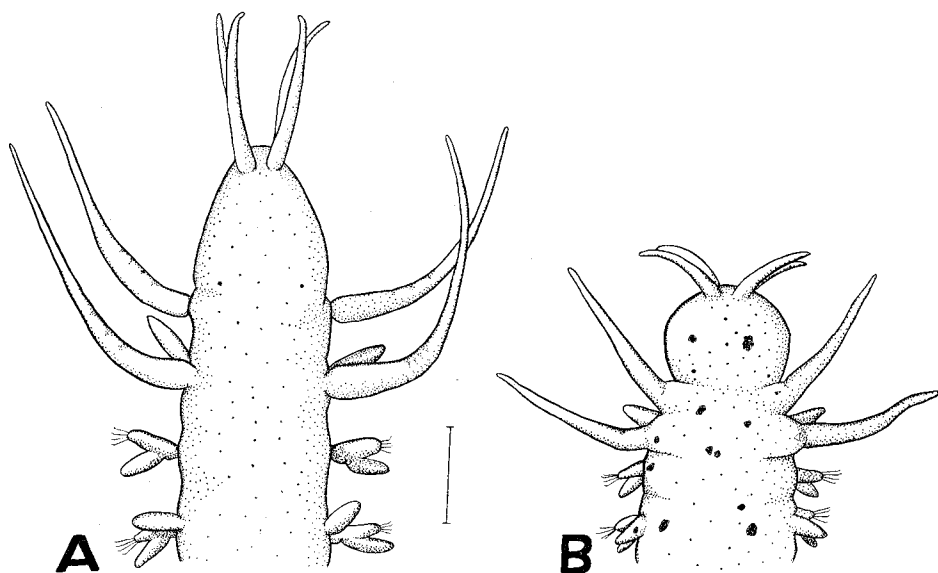


Fig. 1. *Hesionura japonica* n. sp. A) Dorsal view of anterior part, from Senri form a. B) The same, from Sami. Scale: 0.1 mm.

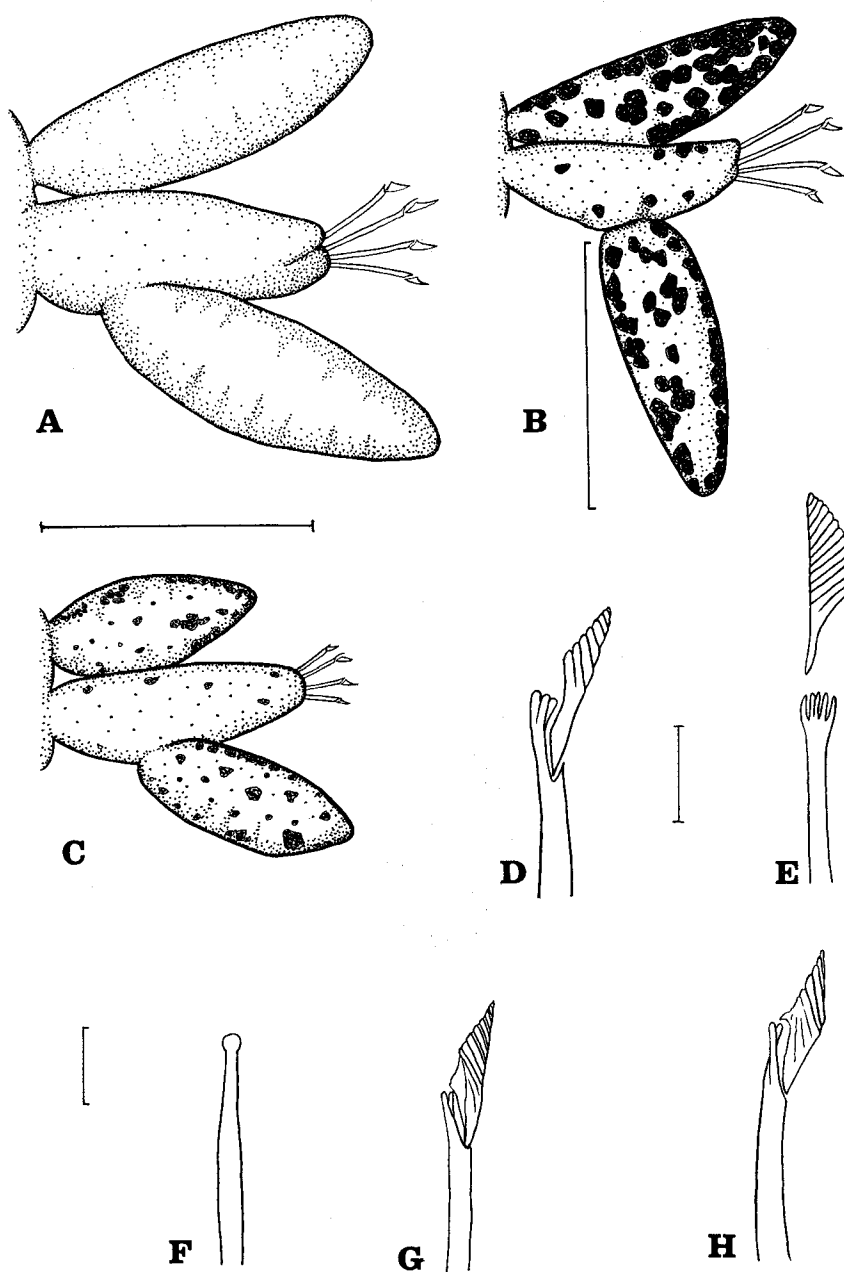


Fig. 2. *Hesionura japonica* n. sp. A) Posterior view of normal parapodium, from Senri form a. B) The same, from Senri form b. C) The same, from Sami. D) Uppermost seta. E) Second seta. F) Aciculum. G) Third seta. H) Fourth seta. Scale: A-C 0.1 mm, D-H 0.01 mm.

covered with round papillae all over.

The tentacular cirri of the first segment (first tentacular cirri) are longer than the antennae. The dorsal pair of second tentacular cirri is a little longer than the first one. Its ventral pair is much shorter, about one-third of the dorsal one.

First several pairs of setigerous parapodia are smaller gradually attaining the size of normal ones.

The dorsal and ventral cirri of normal parapodium are almost of the same size and long oval form; the base of the former is free from the main parapodial lobe, while the latter arises from the mid-ventral margin of the lobe (Fig. 2A, B, C). The dorsal cirrus reaches beyond the tip of the main lobe but for the case in the specimens from Sami. Large grains of presumably adhesive function may be located on the surface of parapodial cirri.

Main parapodial lobes usually measured about 0.1 mm long, provided each with one aciculum and four setae. The aciculum is pale and has a knob-like tip (Fig. 2F). All setae are compound ones the surface of whose blade is rugged like a wash board. The shaft of the uppermost seta is trifid at its end (Fig. 2D). That of the second seta has five slender teeth which looks like a fork or fingers of man's hand (Fig. 2E). The third and the fourth setae are rather thick and alike to each other with the end of the shafts bifid; the blade of the third is slightly longer than that of the fourth; the inner edge of the fourth blade has an embayment, whereas it is nearly

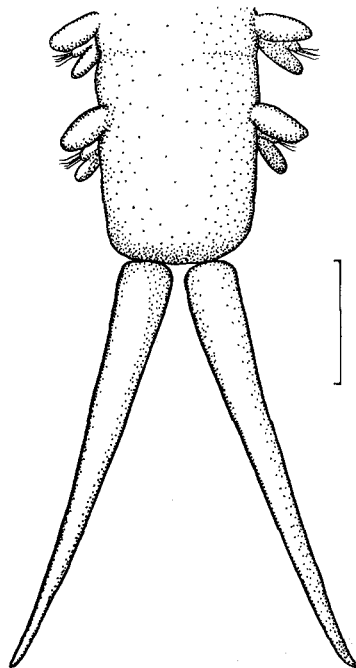


Fig. 3. *Hesionura japonica* n. sp. Dorsal view of posterior end, from Senri form a. Scale: 0.1 mm.

smooth on the third one (Fig. 2G, H).

Anal segment bears a pair of slender anal cirri (Fig. 3).

Specimens from Senri can be divided into two forms, one from the lower littoral of very coarse sand (*form a*) and the other from the middle to upper part near the ground water level composed of coarse sand (*form b*).

Form a is coloured brown or light brown through its total length and remarkably elongated (Table 1); prostomium is spherical cone and longer than wide (Fig. 1A); dorsal cirrus of normal parapodium is longer than the main lobe (Fig. 2A).

Form b is pale green and always covered with sand grains and shell debris by dense adhesive glands on the surface of parapodial cirri (Fig. 2B); shapes of prostomium and parapodium are the same as the former; provided with fewer segments and shorter than the former, this form is almost equal in the length per segment.

Table 1. Relation between body length and number of segments at each population.

	Number of specimens examined	Mean number of body segments (A)	Mean body length (B)	Length per segment (B/A)
Senri, <i>form a</i>	6	199	28.0 mm	0.143 mm
<i>form b</i>	4	161	17.9	0.144
Ônokawa	5	127	10.5	0.085
Sami	6	121	8.2	0.068

Specimens from Ônokawa are coloured light brown with dark proboscis; shapes of prostomium and parapodium do not differ from those observed on the material from Senri; however, not only the total length but the length per segment is shorter than the forms from Senri.

Those from Sami are also light brown and with dark proboscis; prostomium is nearly globular and as long as wide (Fig. 1B); body is short and remarkably contracted; parapodial cirri are more oval; the dorsal cirrus cannot exceed the main lobe (Fig. 2C).

DISCUSSION

The present material involves a wide range of variation in colouring, size and proportions mainly in accordance with the population it belongs to. *Form a* from Senri is the most elongated one, with cone-shaped prostomium and rather slender parapodial cirri; Sami population, on the contrary, represents the most contracted form with sub-globular prostomium and oval parapodial cirri. At first sight, these two extreme forms seemed to constitute distinct species. But there lies between them an intermediate form represented by Ônokawa population. The form shows considerable contraction of body segments near to the degree seen in Sami population (Table 1) and also the same colour pattern, but the shape of prostomium and the proportion of parapodial cirri are common to *form a*. It seems to be impossible, therefore, to divide the present materials into some separate species; in addition, the arrangement

and the shape of parapodial setae coincide among all the populations in detail. For these reasons, they are here enrolled in a single species all together. Such external differences in appearance might be attributed to the growth stages of worms in various populations or to the conditions of fixation; moreover, the extent of size of such interstitial worms as *Hesionura* might be controlled by the degree of development of pore systems around them which implies the dimension of their space to live in.

Form b from Senri is distinctive in the secretion of mucus and greenish body colour. But in other features, it agrees well with *form a*.

The Japanese form closely resembles to *Hesionura augeneri* (Friedrich 1937) and *H. portmanni* Laubier 1967 in the arrangement of setae: the uppermost setal shaft is trifid, the second one with slenderly forked tip and the lower ones bifid. Concerning to the second seta, *H. augeneri* was redescribed by Hartmann-Schröder (1963) to have simple one with seven-forked shaft. *H. portmanni* was originally described to bear compound one with four-forked shaft (Laubier 1967), though Hartmann-Schröder (1974) reported that the material from Walvis Bay, Southwest Africa, bore simple one with three- or four-forked shaft. I happened to be able to observe one whose blade detached from the shaft (Fig. 2B), which proved the seta in question to be compound at least concerning the Japanese material.

The present worm is distinct from the two species mentioned above in the form of the second seta with five-forked shaft; in addition, the dorsal and ventral cirri on parapodium are almost of the same size, whereas the ventral one is much longer than the dorsal one in both *H. augeneri* and *H. portmanni*.

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